<u>Amendments to the Specification:</u>

Please replace the paragraph at p. 1, line 6 with the following:

Optic switches are indispensable in future all-optical broadband telecommunication systems. The current optical switches include optical mechanical switches (OMS) including MEMS, thermooptic switches (TOS); liquid crystal switches (LCS) and electro-optic switches (EOS). The drawback of OMS/MEMS, TOS and LCS are their low speed (switching time ~ 10 ms or longer) and poor mechanical reliability. Although EOS is fast (switching speed can be a few nano-seconds), its complicated fabrication process, polarization ~~dependent~~ <u>dependence</u> and huge optical insertion loss limit its applications.

Please replace the paragraph at p. 5, line 9 with the following:

Figure 2 illustrates a pair of Faraday rotators in accordance with the present invention. The pair of Faraday rotators comprises a latched Faraday rotator 202 which comprises a permanent magnetic garnet. The latched Faraday rotator 202 is Bi-substituted with a thickness which is enough to achieve about a 45 degree rotation at a given wavelength (such as 1550nm). The pair of Faraday rotators also comprises a switching Faraday rotator 204 which comprises a Faraday rotator 211 mounted within a ferrite core 212, and an electric coil 213 surrounding the ferrite core 212. A current may be provided to the electric coil 213, creating a magnetic field. The current-produced magnetic field is enhanced by the ferrite core 212, which is large enough to cause the Faraday rotator 211 to rotate a polarization direction of a light either about 45 degree clockwise (CW) or counter-clockwise (CCW), depending on the direction of the current. The switching Faraday rotator 204 should have a small saturation field so that only a small current is needed. The Faraday rotator 211 can be either non-latched or latched with a ~~hesteresis~~ <u>hysteresis</u> loop. For a latched Faraday rotator 211, only a pulsed current is needed to set the polarization

rotation direction.

Please replace the paragraph at p. 7, line 11 with the following:

Figure 6 illustrates the polarization states and positions of the light after passing through each component of the switch 500 illustrated in Fig. 5. The states and positions ~~illustrates~~ illustrated at each letter A-F correspond to locations A-F at the switch 500, as labeled in Fig. 5. The upper two diagrams illustrate a light as it travels between port 1 and port 1'. The lower two diagrams illustrate a light as it travels between port 1 and port 2'.

Please replace the paragraph at p. 9, line 16 with the following:

Figure 8 illustrates the polarization states and positions of the light after passing through each component of the switch 700 illustrated in Fig. 7. The states and positions ~~illustrates~~ illustrated at each letter A-F correspond to locations A-F at the switch 700, as labeled in Fig. 7. The upper two diagrams illustrate a light as it travels between port 1 and port 1'. The lower two diagrams illustrate a light as it travels between port 1 and port 2'. Note that the beams in this diagram move in two-dimensions, in contrast to that of Fig. 6.

Please replace the paragraph at p. 12, line 17 with the following:

The switch 900 is bi-directional, i.e., when light travels in a reversed direction, and port ['] 1' and 2' are used as input ports and ports 1 and 2 are used as output ports, the switch 900 still functions.

Please replace the paragraph at p. 15, line 4 with the following:

The switch 1300 is bi-directional, i.e., when light travels in a reversed direction, and port

[']1' or 2' is used as an input port and port 1 is used as an output port, the switch 1300 still functions.

Please replace the paragraph at p. 15, line 17 with the following:

A first light with arbitrary polarization is input from the first input port 1. It traverses the collimator 1508 to the cubic PBS 1502. The cubic PBS 1502 decomposes the light based on ~~it~~ its polarity. The portion of the light vertical to a plane 1512 in the cubic PBS 1502 is reflected toward the first reflective switching Faraday rotator 1200A. The portion of the light parallel to the plane 1512 is transmitted to the second reflective switching Faraday rotator 1200B. The reflective switching Faraday rotators 1200A and 1200B manipulate the polarization of the portions, as described above with Fig. 12, and reflects the light either with a polarization rotation of about 0 degrees or 90 degrees. If there is no polarization rotation, the cubic PBS 1502 lets the light travel to output port 1'. If there is a 90 degree polarization rotation, the light will be reflected by the cubic PBS 1502 and exit output port 2'. Similarly, input light from port 2 can be switched to either 1' or 2' depending on the polarization rotation of the reflective switching Faraday rotators 1200A and 1200B.

Please replace the paragraph at p. 16, line 6 with the following:

The switch 1500 is bi-directional, i.e., when light travels in a reversed direction, and port [']1' and 2' are used as input ports and ports 1 and 2 are used as output ports, the switch 1500 still functions.

Please replace the paragraph at p. 16, line 9 with the following:

Figure 16 illustrates a top view and a side view of a polarization independent 2x2

magnetooptic switch utilizing a special-shape polarization beam splitter (Glan-Thompson) and a reflective-type switching Faraday rotator in accordance with the present invention. The switch 1600 comprises a dual fiber collimator 1610, a special Glan-Thompson PBS 1602, and a switching Faraday rotator 1604. The switching Faraday rotator 1604 can ~~be~~ comprise~~s~~ of two Faraday rotators, one latching rotator (45 degrees) and one switching rotator (45 degrees), as illustrated in the upper two diagrams. The switching Faraday rotator 1604 can also be comprised of one Faraday rotator 1608 (45 degrees) with the other 45 degree rotation being provided by another latched Faraday rotator 1606 external to the switching Faraday rotator 1604, as illustrated in the bottom diagram. The switching Faraday rotator 1604 rotates a polarization direction of a light either by a total of about 0 degrees or 90 degrees in the same manner as the switching Faraday rotator 1200, illustrated in Fig. 12. The switching Faraday rotator 1604 can also be used in the switches 1300 and 1500, illustrated in Figs. 13 and 15, or with any other reflective type magnetooptic switch.